Digitized by the Internet Archive
in 2008 with funding from
Microsoft Corporation

http://www.archive.org/details/ospreyillustrate01n01newyuoft

P
Biol.
O

VOLUME I. NUMBER I. NEW SERIES. JANUARY, 1902.

THE OSPREY

AN ILLUSTRATED MONTHLY MAGAZINE of BIRDS & NATURE

LIBRARY
FEB 15 1932
UNIVERSITY OF TORONTO

Complete Series,

Volume VI.

CONTENTS.

The California Jay (*Aphelocoma californica*); Some of its Habits and Characteristics. By D. A. Cohen, Alameda, Cal. 1
Random and Reminiscent Maine Bird Notes. By W. C. Kendall, U. S. Fish Commission 6
August Birds of Stony Man Mountain, Virginia. By William Palmer 9
Life and Ornithological Labors of Sir John Richardson. Compiled by Theodore Gill 13
Reviews 17

SUPPLEMENT.

GENERAL HISTORY OF BIRDS 1-4

THE OSPREY COMPANY,
WASHINGTON, D. C.

ENTERED AS SECOND-CLASS MAIL MATTER AT THE WASHINGTON, D. C., POST OFFICE, 1898.

The Osprey.

An Illustrated Magazine of Popular Ornithology. Published Monthly by the Osprey Company.

Edited by Theodore Gill and Paul Bartsch, in collaboration with Robert Ridgway, Leonhard Stejneger, Frederic A. Lucas, Charles W. Richmond, William Palmer and Harry C. Oberholser of Washington and Witmer Stone of Philadelphia.

Contributions of a relevant nature are respectfully solicited.

Articles intended for publication, Books for review, and Exchanges, should be addressed to the Editor of the Osprey, 321 and 323 4th Street, N. W., Washington, D. C.

Subscriptions: In the United States, Canada and Mexico, one dollar a year in advance; single copies ten cents. Foreign Subscriptions: One dollar and twenty-five cents; postage paid to all countries in the Postal Union.

Advertising rates sent on request.

THE OSPREY COMPANY, 321-323 4th Street N. W., Washington, D. C.

BACK NUMBERS OF THE OSPREY.

A Few Complete Sets of Volume Two at $1.50 Each.

We can no longer supply Volume One at any price.

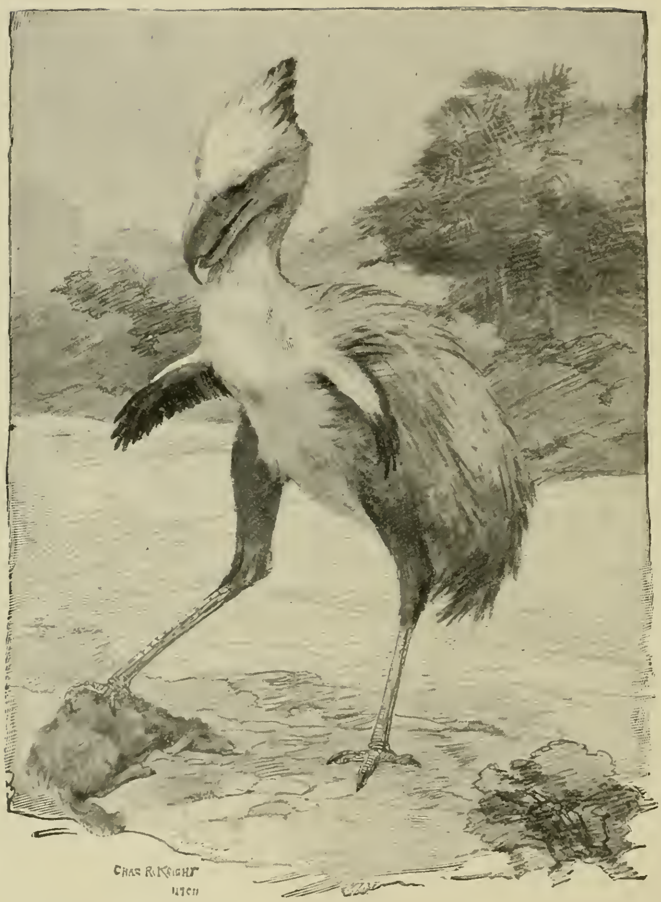
We have a few odd numbers of Volume One at an average price of fifty cents each.

Prices quoted in this statement are subject to advance without notice.

Subscription for Volume Two will be accepted at $1.50, until further notice.

Order promptly, as we cannot supply many numbers.

Address THE OSPREY COMPANY, 321-323 4th Street N. W., Washington, D. C.



THE GIGANTIC PHORORHACOS OF OLD PATAGONIA.

THE OSPREY.

An Illustrated Magazine of Popular Ornithology.

Published Monthly.

VOLUME I. (New Series). JANUARY, 1902. NUMBER 1.

THE CALIFORNIA JAY (*APHELOCOMA CALIFORNICA*); SOME OF ITS HABITS AND CHARACTERISTICS.

By D. A. COHEN, Alameda, Cal.

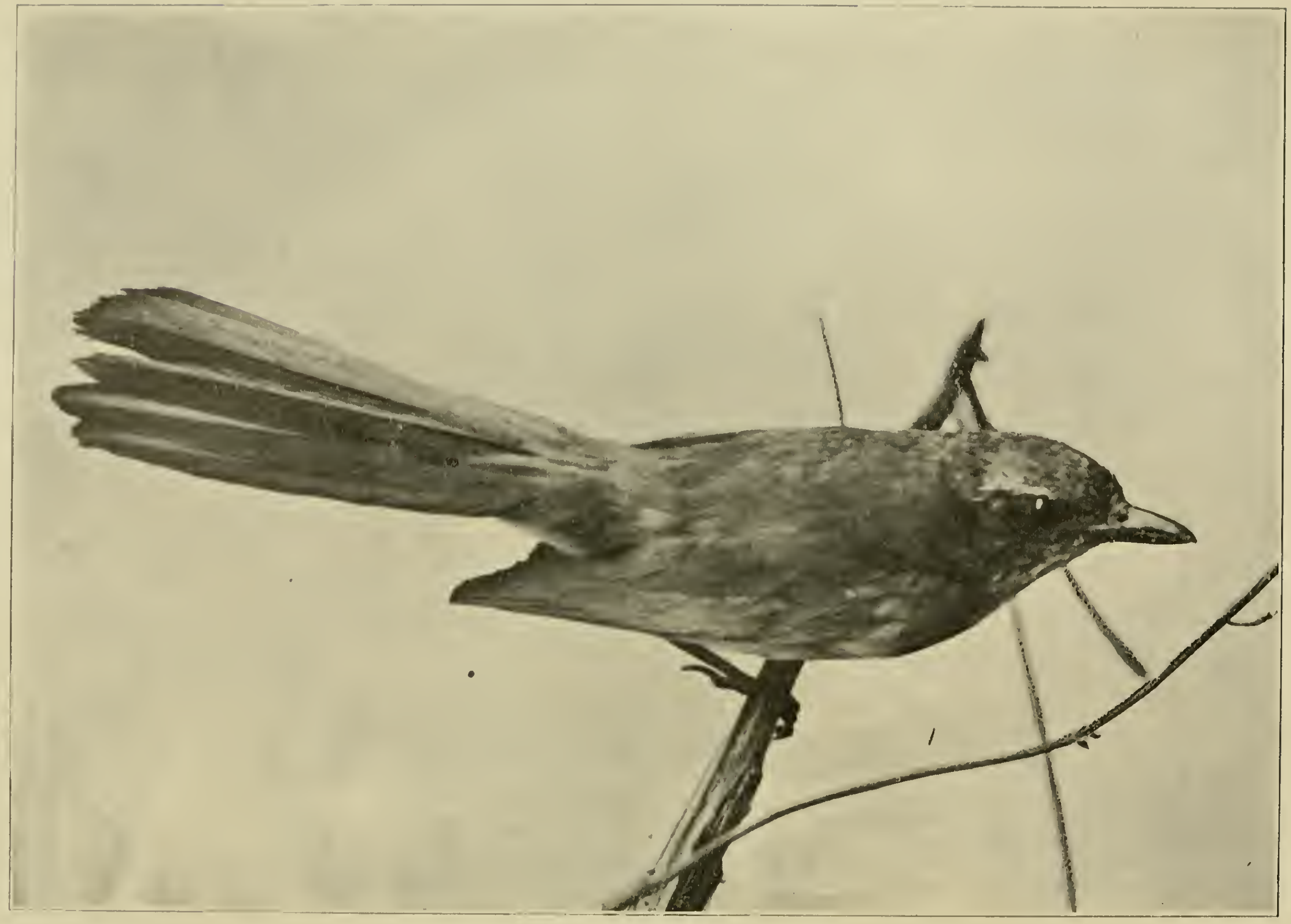
Most of my observations on this species were made at Alameda, California, which is a sandy peninsula roughly four miles long by a mile wide, bounded on the north by level, dark, loamy or adobe fields, gradually merging into the foothills or Coast Range mountains, and on the remaining three sides by San Francisco Bay, its marshes and tributary sloughs. The peninsula, or city limits, was primevally a forest of stalwart and picturesque live oaks with more or less deviating upper branches toward the rising sun, due to the prevailing winds from the Pacific Ocean. Close to the bay shores the oaks are noticeably scrubby and stunted and possess a greater incline toward the east, the upper branches of some running only in that direction, in such strained fashion that the crowns are almost flat. Cypress, pine and Australian blue gum, (*Eucalyptus*), have been planted in profusion, but the California Jay is still faithful to the oak of its ancestors, rarely deviating from this custom in nesting. Oaks of younger decades were well intermingled with the deeper rooted, gnarled and lichen-covered trees of more ancient years, while less high, the chaparal brush and wild lupin, often small trees in themselves, furnished many a retreat for deer, rabbits and quail. Poison-oak, somewhat similar to your eastern poison-ivy, grew in patches by itself or found a runway upwards against the rough oak bark, and often a trellis among the upper branches, frequently assuming vigorous proportions. Masses of wild blackberryvines flourished in large patches under and above the oaks, meshing the brush or sending their multitude of runners up the low branches to goodly heights. Wild flowers of various and elegant hues carpeted the natural clearings, from February, when the sun coaxed the more hardy varieties into bloom by his genial rays, until May, when they began to fade and wither away, species by species, as the summer or dry season set in. In those days the game and the wild birds and the wild flowers were in their height of abundance and grandeur, but have gradually fallen back at the encroachments of civilization. The deer have long since become a thing of the past, but quail (California Partridge) still manage to hold their own on protected tracts, and an occasional cotton-tail rabbit manages to find a secluded copse of wild blackberry briars where he is safe from roving dogs, and hare or jackrabbit now and then ventures down from the hills. At the present day many species of our flora are but remembrances and only a comparatively small percentage of our avifauna represents the once abundant clans that furnished life and song to our woodlands. In fact, some varieties seldom visit these parts nowadays, but the California Jay is here in goodly numbers; too cheeky to be crowded out. He is now enabled to procure food from man's agency as well as nature's, a greater variety of more tempting morsels as he evidently sagaciously thinks, often building his nest in some vacant lot or safer yet, in some secluded garden where as yet an oak or two have been spared from the woodman's axe, among our population of over 20,000 souls.

In only a few parts of town remain small tracts of oaks and underbrush in something of the original state, and rambling through them early in March we will find the Jays mated, rather unobtrusive and tolerably silent for such noisy birds, now and then uttering a low croak which is either a warning note or an intentional subdued means of communication. Late in March we may observe a bird convey small sticks, but the birds will stop work if aware of being watched. Roughly, in two weeks the nest will be completed, longer if the weather is cold, rainy or windy. Many nests are abandoned before work on the lining is commenced, from, to me, unaccountable reasons. In only one case have I known an old nest to be used for roosting purposes by the mate of the incubating bird. About the 10th of April is the mean time for fresh sets here, and by the 20th every pair should be incubating. Ordinarily five eggs constitute a set, sometimes four eggs, and sets of six are not rare. Mr. H. W. Carriger of Sonoma County, some forty or fifty miles to the north, informed me the birds in his district nearly all laid in March and the sets were mostly of six eggs. The foundation is a bulky affair, composed of a quantity of dead twigs from the live oaks and, being leafless and almost straight, fall readily apart when raised en masse. Then comes the nest proper, of a few coarse rootlets and fibres about the thickness of long horse hair, and lastly the lining, a generous quantity of hair from the tails and manes of cattle and horses, all this well cupped and neatly rounded and capable of being transported intact. The foundation twigs are well built up about the sides of the nest, roughly flushed with the brim. One nest is almost the counterpart of another, except the only nest I found in a cypress tree, and that possessed a liberal quantity of dead cypress twigs mixed in with the oak twigs which were brought from about 125 yards. A few nests found at about the same distance from any oak had the favorite foundation twigs predominating over apple twigs. Apple rootlets were well in evidence in the nest proper, but all of them were lined as usual with the fibre and hair mentioned. For a nesting site a medium sized oak is generally chosen, one with plenty of cover to it, usually near the end of a limb, not in the forks, but among the twigs, ranging from 8 to 10 feet from the ground to 40 feet in the tops of large oaks, nearly always in a well selected site to expose the collector to most risk and trouble. Being so built the nests are not so easily missed by the experienced eye.

This season I took a set of four eggs containing large embryos, on April 15, from a nest 13 feet from the ground, near the end of a long horizontal limb of a medium sized live oak where its foliage nearly chafed that of a companion oak. Eighteen days later the pair had 4 eggs, embryos formed, in a nest 9 feet from the ground, at end of a horizontal limb of a bushy live oak, 50 feet distant from the original site. April 16, I took from a second pair, 5 eggs containing small embryos, 20 feet from ground in outer branches of very "bushy" live oak of quite large dimensions. The second set of this pair was found incomplete 20 days later, nearly 40 feet up in the crown of a topmost branch of a spreading live oak. It was only by the aid of ropes that the nest was reached, and it contained 3 fresh eggs. This oak was 200 feet from the site of the original nest. April 19, I took from a third pair 5 eggs containing medium sized embryos, from the top of a small oak, 20 feet from the ground, and the second set, of 5 eggs, incubation begun, 14 days later. The site was 15 feet up among new shoots of a severely pruned pear tree, and the nest was found begun two days after the first set was taken. April 21, I took from a fourth pair 4 eggs, although the bird was noted on the nest on the 19th and 20th. The site was 9 feet from the ground in outside lower branches of a gigantic live oak. The eggs of this pair of birds are marked much like eggs of the Woodhouse Jay (*Aphelocoma woodhousei*) although not so profusely. I have taken the eggs of this pair every season for the last 4 years. Each set was of 4 eggs only, except one of 5 eggs, also their second set this season which was of 6 eggs, and handsomer, and showing more variation than any of their preceding. One egg is not darker than those of the Bluebird (*Sialia sialis*) and all of them run very much so, probably owing to the thinness of the shell. In each set one egg is marked on the small end and is free from markings on the opposite end, and on almost the entire egg. The second set this season was taken 14 days from the first, fresh. The nest was hurriedly constructed considering the light layers of foundation twigs and scant lining, but well capped with red rootlets of apple trees. It was 13 feet from the ground in the top of a scrubby apple tree in an apple orchard, and about 180 feet distant from the original site. On July 7, unfeathered young were found in a nest in the thick growth of a tree, about same distance from the ground, and part of an egg shell on the ground, under the nest, established the bird to be the fourth pair mentioned. Their third set must have been destroyed considering the length of time elapsed since the second set was taken.

On May 6, a nest in an apple tree contained large bunches of red cow hair as well as the balance of the usual lining. Two slightly incubated eggs reclined in the nest while a third, fresh, was over the brim, prevented from falling by the foundation twigs. April 16, I noted a parent feeding nestlings in nest in top of an oak, and was attracted by their clamor for food. The parent left the vicinity immediately upon catching sight of me. April 25, after an unusually hard climb of 25 feet among small branches of an oak with drooping branches I found the parent brooding newly hatched young. The nest was hardly visible from the ground, owing to an unusual amount of dead twigs screening many of the branches on the inside, and had escaped previous scrutiny. May 12, after visiting a lot of foundation twigs for a period of ten days, and seeing no owners about, I had concluded it was abandoned, but passing along on June 22, a missile thrown at it sent several young fluttering about to the tops of the branches. I had noticed the birds here carrying twigs extra early in March, and why it was twice abandoned before being used I cannot say. On May 17, a very small oak, not over 10 feet high, in a little clearing, held a nest near its crown containing 4 eggs about to hatch. They were much less pointed than usual, extra large, and of darker tone than any I have ever taken, much the type of dark eggs of the Crow (*Corvus americanus*). There is considerable variation in size and shape as well as character of markings in eggs of a season's take. Those of the reddish phase were rare, but Mr. Carriger says the Sonoma County sets often run that way, and I have heard the same from other localities, but have never seen the counterparts of the Woodhouse Jay's eggs except in the case of the fourth pair of birds above described. In the cases of the birds (four pair) robbed twice there was faithful similarity in every character between the first and second sets of a pair of birds.

Taking it for granted that the female does all the incubating, she is a fairly close sitter, but a stick thrown at the branches about the nest will always flush her. She darts away screaming loudly, attracting her mate, who returns with her to aid in the protest, both of them swooping about or hopping from perch to perch so long as I am present, and perhaps joined by some of their tribe who help make more fuss. They are suspicious enough at times to abandon an incomplete set just because they saw me climb up and look into the nest, without touching it. The young when hatched are almost black and devoid of down, and are cautiously quiet at all times. Young or old, they are pugnacious to the last when captured. In the latter part of July and until late in



THE CALIFORNIA JAY.

September they are quite gregarious, feeding within sight or hailing distance of each other. A whole family appears to be united until winter, being joined by others, and it is not uncommon to see from 10 to 20 individuals on a small area. As insects destroyers they are unquestionably very beneficial, but as destroyers of young birds and eggs, and the property of man, they are certainly detrimental; therefore of benefit in some localities while injurious in others. Their fondness for eggs keeps many a weaker bird on the *qui vive* and the unguarded eggs of the California Partridge (*Callipepla californica*) are most commonly taken. Chickens' and turkeys' eggs are often taken from nests away from the barn yard, and this blue pirate often pecks open more than he can use. The turkey is naturally cautious, but often fails to scratch leaves and rubbish over her nest before she leaves, and the sight of a pecked egg in her nest, before she becomes broody, causes her to abandon the others and generally stop laying for a couple of weeks or longer, thus making her young lose the early spring days which are essential for best results to young turkeys. The wise rancher places a bit of "dope" in the mutilated egg, and in nine chances out of ten he will find the dead Jay close by in a day or two. At times this freebooter will enter the yard, and even the chicken house, to feast on eggs or, becoming more bold, will in rare cases attack broods of domestic fowls, and once I watched a hen turkey ''standing off'' a ''kidnapper'' that had designs on her newly hatched brood, and she was kept thinking to parry his cunningness and agility. One met his death from a gunshot wound while placidly eating the brain of a small broiler he had attacked and killed. A sportsman told me how he saw a pair of Jays catch three baby quail that the mother was leading across a road. Hunger cannot be the sole incentive for such ''crimes'' because there is always an abundance of food, but it's his nature to be bold, saucy and thieving, and many of the worst ones bring the whole clan into disfavor. Sometimes they will collect their ''gang'' and ''jump'' an inoffensive Red-shafted Flicker (*Colaptes cafer*) that is more than a match for them singly. They seem to delight in bullyragging Lewis's Woodpecker (*Melanerpes torquatus*) or the California Woodpecker (*Melanerpes formicivorus bairdi*) whenever they chance to visit this locality to gather acorns for winter use. He will rob almost any unprotected bird's nest, but if the collector tries his hand at it, Mr. Jay is likely to appear and raise as big a fuss as if the nest was his. The bird student has taken a great dislike to him on account of his systematic habit of poking about and raising a noise where quietness is essential to desired results. His harsh ''chee-chee-chee'' has long ago driven the subjects of investigation under cover, but that don't matter to him as he goes up to the nest tree top where he perches, alternately bobbing up and down, not forgetting to keep up his noise. The deer stalker in the hills has spent considerable toil and patience, and is at last nearing the spot from where he expects to be rewarded by firing a sure shot, but Mr. Jay who has been watching sets off a mocking and defiant alarm which the quarry full well knows the import of and scampers to cover while the Jay flits across the cañon, seemingly calling out "cheap-cheap-cheap! feel cheap? feel cheap?" He indirectly acts as sentinel for rabbits and quail and often pays the penalty by being filled with lead. Many of the sportsmen's clubs hold regular shoots and put up prizes for the greatest number of Jays, Crows, Hawks and Owls killed. Much has been said and printed against this indiscriminate slaughter, and it is now tabooed.

Whether the Jay stores up the supply of acorns he carries off in the fall for winter use, or chiefly for the worm which will infest them, is a matter of conjecture. I never found his storehouse, and am inclined to think he drops most of them from the tree he carries them to. Occasionally he uses his feet as a means of carrying acorns and almonds in flight. He pilfers from the winter larder of the Flickers and Woodpeckers and runs everything in general to suit himself until he bumps into the Sharp-shinned Hawk (*Accipiter velox*). Most of his food is obtained from the ground, which he watches from some elevation, but acorns he gathers from the tree tops. He is on the bill-of-fare of the Duck Hawk, and although a bird of short flight often goes sailing over the cañon where he is captured by a better flying machine than he is.

RANDOM AND REMINISCENT MAINE BIRD NOTES.

By W. C. Kendall, U. S. Fish Commission.

As is too frequently the case with the country boy, my first collecting mania was directed toward bird eggs. At first only one was taken from a nest; later, for exchange, two; finally, the whole lot, and if small the nest also. But as is unfrequently the case, this "bird-nesting" propensity was never wholly outgrown, and it led to the study of the birds and their habits. Fortunately for the birds, in my earlier days I did not know how to prepare their skins for preservation and never have become proficient in the art. But I pride myself in having been instrumental, to some extent, in the preservation of living birds. In the infancy of the Audubon Society, I organized several societies; and, though many of the members have "back-slid", I know of some that have kept their pledges to this day. "Little drops of water, little grains of sand," make mighty aggregates, but my efforts in behalf of the birds are not manifest in the vicinity of my native town.

My oölogical zeal reached its high tide between 1878 and 1880. Then there was a considerable colony of Terns breeding on the Inner Green Islands of Casco Bay; also "Sand Peeps" and Bank Swallows nested there. To day, not one pair of these birds, to my knowledge, breeds there. I have just mentioned the "Bank Swallows" of these little islands. I have never elsewhere seen these birds nesting under just such conditions. Usually the burrow is in a sand cliff. There were no cliffs or banks on these islands which were solid ledges overlaid with a rather thin layer of turf; around the edges the turf was often broken or weathered away, leaving the soil exposed. In these exposed places the Swallows dug shallow holes, lining the inner end with a few feathers in which they laid their eggs. Occasionally the matted roots of the beach-pea and other plants formed an overhanging shelf, the soft dirt having been worn away. Under these shelves the Sand Pipers scratched together a few leaves and sprigs of dead grass for a nest and laid their eggs, whose small ends always pointed toward the center.

At this time, also, there was a rookery of "Quawks" or Night-herons on Eagle Island. Then I have seen as many as ten nests in one tree, and the underbrush was white-washed with their drippings. In these nests, at one time, were young, ranging all the way from well incubated embryos in the egg to nearly grown birds almost ready to fly.

This, 1901, I did not see a living bird on the island and there were no signs of their having been there in recent years. About 1875 a visit was made to Brown Cow Ledge near Jewells Island. Tern eggs were so thick on parts of the rock that in stepping about it was with difficulty one could avoid crushing some of them. As early as 1880 not a pair could be found breeding there.

In 1884 I visited the Outer Green Islands. Terns were breeding there in large numbers, and also a few Petrels. I stopped at these islands during the usual breeding season, in 1901, and none of either bird was seen there. The Tern, once so common throughout the bay during the summer, seem to have almost completely disappeared.

In 1900, I spent the greater part of June, July and August on Casco Bay and recall seeing during that time but two Terns, and one of those had been shot by a sportsman (?) who said it was a Plover.

Twenty years ago, in any early evening, on the muddy shores of the estuaries of upper Casco Bay, the Great Blue Heron could be seen in long lines along the edge of the water. In 1900 and 1901 I saw but one. I remember that once two schooners were in Harraseckett River, at Freeport, for several days, and the crews engaged in shooting these birds and salting them down in barrels; I thought then, for food, but believe now that they were used for fish bait.

In those days, too, upland Plovers were numerous, breeding in the fields back from the shore. To-day, in the fields once frequented by them, occasionally a pair may breed. Last August I visited some old fields where I used to find the birds so common, and found none at all. By inquiry of a farmer, I learned that one or two pairs had been seen "during haying" but since then none had been observed.

I do not dwell upon this theme of the disappearance of birds from their former haunts because the facts are now but to emphasize them.

Every state is adopting some method of bird protection. More stringent laws are advocated. How to make suitable laws is a legislative problem; how to enforce them is another. Good laws well observed are better than any laws, stringently enforced, but broken under every favorable opportunity for their infringement. Parental law and education of the youth will prove more effective.

When I was a boy, I was not allowed to have a gun until I was old enough to "know better." I once surreptitiously borrowed my father's gun and went "a gunning"; but the exercise in the field was nothing compared with the massage I received upon my return with my game—a robin.

I do not believe there is a boy in Freeport today, large enough to carry one, who has not a gun of some description, and notwithstanding the laws to the contrary, small birds suffer in consequence.

Speaking of guns reminds me that the "Partridge" (Ruffed Grouse) in Freeport has not decreased in numbers so conspicuously as one would expect. In 20 years there has been a falling off but even now the bird is not uncommon. I think the decrease in numbers has not been more than commensurate with the disappearance of suitable cover. The birds are wilder, however, and their swift flight is more than an offset to the skill of the ordinary gunner.

Relative to these grouse I must allude to the coloration. Very red birds and light gray birds, with those of various intermediate phases of coloration, occur in Freeport, a coast town, and the same thing was noticed in the Grouse of extreme northern Maine. This, of course, is not a startling phenomenon, but it is sufficient to attract the attention of one not conversant with the condition of affairs among these birds.

Mr. Robert Ridgway tells me that this is the overlapping or intergrading of the typical *Bonasa umbellus* and *Bonasa umbellus togata.*

Pertinent to grouse, I recall that some years ago there was considerable controversy, in some sportsman's journals, regarding the manner in which the male birds drum. Whether it was ever settled or not I do not know. This fall, for the first time, I saw a cock Grouse drumming. It was near Churchill Lake in northern Maine. Our party was hungry for some meat other than bacon. A bird was heard drumming. I seized my gun and started for the bush. At first it was difficult to locate the source of the sound. After fully half an hour of slow and stealthy approach, I got within sixty feet of the bird; even then, I could not at first discern him clearly. He was crouching or sitting crosswise of an old log, with his head drawn down as if asleep. I lay on the ground motionless for some time watching the bird, which did not move save to now and then raise his head to look and listen at some slight movement or noise. When about to drum, he would straighten up without really standing up, much as a duck flapping his wings while sitting on the water. Beginning with slow short interrupted strokes he would beat against his side, or the air, faster and faster, finally, still fast but with less force, causing the sound to die out in a sort of a faint whirr, when he would resume his former crouching position. This drumming occurred at intervals of 6 to 10 minutes. He did not "strut up and down the log" nor did he strike the log with his wings; he did not even stand up. It seemed to me that the sound was caused by the air being forced from between the wings and the body by the short quick strokes. For nearly an hour I was so highly entertained and so grateful to that bird that we ate bacon for supper.

AUGUST BIRDS OF STONY MAN MOUNTAIN, VIRGINIA.

By William Palmer.

I spent from August 12 to September 1, of this year, on Stony Man Mountain, one of the highest of the northern Blue Ridge Mountains, situated in Page and Madison counties, Va. The season was too late to note the summer birds, a few only remaining, therefore, I can only give some idea of the late summer bird life and such points of interest as I was able to learn during a period not given exclusively to the study of birds. "Deadenings" were many years ago made in the forests of these mountains for clearings about settlements, many of which have been abandoned, while forests fires have swept along the mountain sides and effected a change which would have hardly occured if man had left the mountain untouched. It is such influence which affects the bird life, the tendency being to permit several species to ascend to elevations which they would probably never reach if natural conditions prevailed.

The highest point of the mountain is 4,035 feet, and rises as a cone from the general mass which roughly speaking is greatest at 3,500 feet. Except for the several rocky exposed peaks and several other exposures of rough rocks, the mountain is densely forested with deciduous trees with a sprinkling of hemlock and several species of pines. The resident summer bird life remaining consisted of the following forms:

The Junco, *Junco hyemalis*, common, but most abundant about the gardens at 3,500 feet. The young were just beginning to molt the mesoptile plumage. Two nests seen were imbedded in the moss of well shaded sloping rocks with many overhanging ferns.

The Wood Pewee, *Contopus virens.* Scattered throughout the woodland; its plaintive notes, a little sharper than in the low lands, were often heard.

The Phoebe, *Sayornis phoebe.* A nest containing a single, bad, spotted egg was found at about 3,200 feet, but no birds were seen.

The Blue-headed Vireo, *Vireo solitarius.* A number of immature individuals were seen and several secured.

Bewick's Wren, *Thryothorus bewicki.* Fairly common up to 3,500 feet, but most abundant about houses and clearings.

Brown Thrasher, *Toxostoma rufum.* Several families about the brushy fences of a garden. The young were molting.

Towhee, *Pipilo erythrophthalmus.* Fairly common in similar places, but extremely abundant toward the end of the month when they were evidently migrating. The young were changing their mesoptile dress.

Field Sparrow, *Spizella pusilla.* Common about clearings at 3,500 feet.

Chipping Sparrow, *Spizella socialis.* A few seen and heard in clearings.

Robin, *Merula migratoria.* Quite numerous about clearings.

Catbird, *Galeoscoptes carolinensis.* One was often heard about a bushy ravine at 3,200 feet. It seems probable that the Thrasher, Towhee, Catbird and Sparrows have extended their habitat up the mountain owing to deforestation.

Cedar Bird, *Ampelis cedrorum.* Quite common at 3,500 feet.

Hooded Warbler, *Sylvania mitrata.* An immature male in fall plumage (*mesoptile*) was taken at 3,300 feet in a Kalmia swamp; another was heard a little higher, and many about the base of the mountain.

Wood Thrush, *Turdus mustelinus.* A nest only was seen.

White-throated Nuthatch, *Sitta carolinensis.* Several seen every day. A pair evidently roosted on Bushy Top above our camp every night, for every morning after 6 o'clock, and every evening before dark, they passed by our tent evidently using the same track up and down the slope.

Flicker, *Colaptes auratus.* A few seen every day, but abundant towards end of month.

Hairy Woodpecker, *Dryobates villosus.* Not common.

Downy Woodpecker, *Dryobates pubescens.* Not common.

The above 17 species were the only ones of which breeding evidence was secured tho' some other species were noted. A Kingfisher was seen several times as high up as trout occurred, 3,200 feet, and certainly spent a night once on the same stream. Woodcock and Ruffed Grouse were seen, and a few Quail were heard in clearings.

The bulk of the birds were migrants and were often very numerous. Many Warblers such as the Black-and-White, Black-throated Blue, Chestnut-sided, Blackburnian, Tennessee and others were numerous, with many Scarlet

Tanagers and Rose-breasted Grosbeaks. A few Hawks, the Crow, and the Turkey Vulture were often seen.

The most interesting feature of the bird life was the migrating swarms. Early in the morning troops of many species, of Warblers especially, were flittering among and over the branches of the dwarf thick foliage of the oaks and chestnuts while other bands, largely Robins, Flickers and Chewinks, were common in the more open bushy places. These last were mostly adults. Frequently the troops of Warblers seemed clustered in the vicinity of one or two. White-breasted Nuthatches, who were somewhat noisy, but aside from a few young Warblers who would now and then utter an effort at a song or an occasional squeak, the woods were silent. The general direction of the birds' flight was toward the southeast, that is, diagonally across the mountain mass toward and south of the rising sun. After 10 to 11 a. m. a few of these birds were seen as the troops had evidently started on the day flight and had doubtless scattered over the lower areas far to the southeast. These birds from the far north were constantly passing while the summer residents, some of them at least, and these nearly all immature, were moulting into the first teleoptile plumage.

The following facts are closely connected with the migration of birds on Stony Man Mountain, and may be of interest on the general subject.

At daylight, with little or no wind, all the valleys as far as the eye could see, both to the east and west of the Blue Ridge, were covered with a dense fog the surface of which was about 2,000 feet above sea level and thus some 1,000 feet above the valley areas. At the same time the mountains from above 2,000 feet, approximately, stood out bold and clear against a rather dull sky with no sign of clouds. By 8 o'clock, however, the rising sun had affected the cloud surface so that it became rapidly dissipated, and spreading, drifted off the depressions of the mountain sides and soon filled all the lower levels, and eventually the mountain tops. By 10 or 11 a. m. a rising breeze would drive away the fog so that with a bright sun the mountains and valleys were clear, except for the haze in the distance.

With an eastern or western breeze early in the morning the fog would be driven in the opposite direction up the mountain side and then pass off as clouds high above the valley. It was not determined how the mountain fog on these windy mornings affected the abundance of birds at daylight for these facts were not established until considerable time had elapsed, and time was not available then to determine the matter, but this much was established, that when the Shenadoah Valley to the westward or northward, and southward as far as could be seen from an elevation of 3,600 feet was covered with a dense cloud and the mountain tops were clear—migratory birds were abundant.

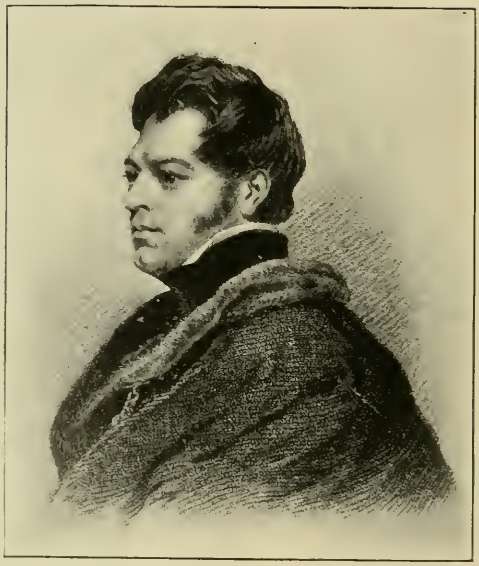
We may be sure that when these birds descended from their night flight they necessarilly alighted where they could see trees, we can hardly accept the possibility of their descent below and through the cloud surface, for the clean mountain masses offered a very inviting field for their early morning search for food.

I was able to devote but little time to discover the presence of the same species in the low grounds, as about Luray, but on my return through Luray, and after spending a night there I did not see a single species that I had noted on the mountain. Kingbirds, Sparrow Hawks, Blackbirds and Meadowlarks were abundant in the valley. During the night in Luray and early in the morning mist hung suspended over the valley at a considerable height, the same mist of which I had frequently seen the compact surface from the mountain and which is a never failing source of interest to the campers of Stony Man, many of whom often watch its changing surface from Sunset Rock as the morning sun and rising breeze compel it to reveal the beautiful landscape almost 3,000 feet below.

Tho' undoubtedly the migrating swarms sighted the cloudless mountain tops as soon as the light was sufficient, I do not believe that the mountain chain was a factor in determining the direction of their flight.

About Washington, some sixty miles eastward, and where there are no mountains, I have often seen during the same period all the species seen on Stony Man. Besides, the trend of the Blue Mountains is to the southwestward. It seems an evident truth, therefore, that the presence of these birds in such large numbers at this elevation in the early morning was due to the fog conditions of the low lands; that probably the same species were not present beneath the fog on the same morning, and that the mountain chain is not a factor in determining the direction of the migration. In all my experience with the birds of northern Virginia, I have discovered but very little evidence that the configuration of the surface is a factor in determining the direction of the flight of migrants in either direction of the land birds. The general movement is southward, or east of south, so that the tendency is to reach the coast, where they often occur in immense numbers.

The Potomac River, however, is a great highway for many species of water birds, and many accounts of the unusual species along this ancient waterway are but a few of the steps of a migration which is regular, common to many species, and which began long before the present configuration of the region became fixed.



SIR JOHN RICHARDSON.
(Born 1787: died 1865.)

LIFE AND ORNITHOLOGICAL LABORS OF SIR JOHN RICHARDSON.

COMPILED BY THEODORE GILL.

One of the most remarkable men who have worked on the birds of America was the John Richardson known as Dr. John Richardson, the arctic traveler, when active in ornithology, and later as Sir John Richardson. He is not to be confounded with the Sir John Richardson who was a Judge of the Court of Common Pleas from 1818 to 1824 or half a dozen others of the same name who made more or less of a mark in literature. For the general features of his life, we take the liberty of invoking the assistance of Mr. G. S. Boulger's sketch in the "Dictionary of National Biography" (vol. 48, p. 233-235).

I.—HIS LIFE.

Richardson was born at Nith Place, Dumfries, on 5 Nov. 1787. His father, Gabriel Richardson, for some time provost of Dumfries and a justice of the peace for the county, was a friend of Robert Burns, who from 1790 to 1796 spent his Sunday evenings at Nith Place. Richardson's mother was Anne, daughter of Peter Mundell of Rosebank, near Dumfries (*Proceedings of the Royal Society*, vol. xv, p. xxxvii).

Richardson was the eldest of twelve children, and was so precocious as to read well when four years old. Burns lent him Spenser's 'Faerie Queen,' and when, at the age of eight, he entered Dumfries grammar school, on the same day as the poet's eldest son, Robert, Burns is reported to have said to Gabriel Richardson, 'I wonder which of them will be the greatest man.' To the rough sports of his school-days Richardson attributed the fact that even beyond the middle term of life he scarcely knew what fatigue was. In 1800 he was apprenticed to his uncle, James Mundell, a surgeon in Dumfries, and in 1801 he entered the university of Edinburgh. In 1804 he was appointed house-surgeon to the Dumfries Infirmary, but returned to Edinburgh in 1806; and in February 1807, having qualified as a member of the Royal College of Surgeons, was gazetted assistant-surgeon on the frigate Nymphe, which accompanied Lord Gambier's fleet to the bombardment of Copenhagen. He was present in August 1808 at the blockade of the Russian fleet in the Tagus, and was then tranferred in quick succession to the Hibernia, the Hercule, and the Blossom. As surgeon on the latter sloop he was sent to Madeira and Cape Coast Castle, and in 1809 was engaged on convoy duty to Spain and to Quebec. Having in 1810 exchanged into the Bombay, he served at the siege of Tarragona, but then obtained leave of absence in order to study anatomy in London. His last service afloat was on the Cruiser in the Baltic fleet during 1813.

In February 1814 he was appointed surgeon to the first battalion of marines, then in North America, and he was with Sir George Cockburn at the taking of Cumberland Island and of St. Mary's, Georgia, in 1825. He then retired on half-pay, and returned to the university of Edinburgh, devoting considerable attention to botany, and studying mineralogy under Jamieson. He graduated M. D. in 1816 (his thesis dealing with yellow-fever), and he then began, though with little success, to practise as a physician in Leith. In 1818 Richardson married for the first time, and in 1819 he was apppointed surgeon and naturalist to Franklin's polar expedition, being specially commissioned to collect minerals, plants, and animals. This appointment introduced him to Sir Joseph Banks, and through him to Dr. John Edward Gray. After passing the winter of 1819 at Cumberland House on the Saskatchewan and traversing one thousand three hundred and fifty miles during 1820, they wintered at Fort Enterprise, and in June 1821 started down the Coppermine River in birch-bark canoes. They reached the coast on 18 July, and penetrated Bathurst's Inlet and Melville Sound as far east as Cape Turnagain 6½° east of the river mouth. In the Barren Grounds they were reduced to great straits, and Richardson was compelled in self-defence to shoot the Iroquois voyageur Michel, who had murdered Robert Hood, a midshipman. On 7 Nov. they were rescued by the Indian Akaitcho, who brought them to Fort Providence. They reached Fort York in the following June, and arrived in England in October 1822, having traversed while in America over five thousand five hundred and fifty miles. In the 'Narrative' of the journey, which was published in 1823, and to which Richardson contributed notices of the fish collected, geognostical observations, and remarks on the aurora, Franklin writes: 'To Dr. Richardson the exclusive merit is due of whatever collections and observations have been made in the department of natural history, and I am indebted to him in no small degree for his friendly advice and assistance in the preparation of the present narrative'.

Having taken up his residence at Edinburgh, where he had as a near neighbour and friend Francis Boott the botanist, Richardson next devoted himself to describing the mammals and birds in the appendix to Parry's 'Journal' of his second voyage (1821–3), which was published in 1824. In the same year Richardson was appointed surgeon to the Chatham division of the marines. He was, however, allowed to accompany Franklin on his second expedition to the mouth of the Mackenzie in 1825, taking with him Thomas Drummond as his assistant naturalist. After wintering at Fort Franklin on Great Bear Lake, having left Drummond at Cumberland House on the Saskatchewan, he and Franklin separated on 4 July 1826, Richardson being sent with eleven men to explore the nine hundred miles of coast from the Mackenzie eastwards to the Coppermine River in the two boats Dolphin and Union.

This he accomplished by 8 Aug., and regained Fort Franklin on 1 Sept. having travelled nearly two thousand miles in ten weeks. He then made a canoe voyage round the Great Slave Lake for geological purposes; and then, Franklin not having returned, started in December for Carlton House, where Drummond rejoined him in April 1827, with large botanical and other collections. On 18 June he and Franklin met once more at Cumberland House, and, after being much fêted in New York, they reached England in September 1827. While preparing his 'Narrative of the Proceedings of the Eastern Detachment of the Expedition,' and the 'Observations on Solar Radiation,' 'Meteorological Tables,' and other contributions to Franklin's 'Narrative' of his second expedition, Richardson was in London; but in 1828 he was back at his official duties at Chatham, where the Melville Hospital, of which he became chief medical officer, had just been built. All his spare time was devoted to the 'Fauna Boreali-Americana', a government publication on a 'splendid' scale, in which he described the quadrupeds and fishes, and assisted Swainson with the birds, while the insects were described by William Kirby.

In 1838 Richardson was appointed physician to the Royal Hospital at Haslar. Here he was mainly instrumental in the establishment of the Haslar Museum, and persuaded the admiralty to introduce the mild methods of treating lunatics. Among his pupils was Thomas Henry Huxley, who stated 'that he owed what he had to show in the way of scientific work or repute to the start in life given him by Richardson;' and he was also frequently visited by Dr. (afterwards Sir Joseph) Hooker, who was then preparing to accompany Sir James Ross to the Antarctic regions. In 1840 Richardson became inspector of hospitals.

It having been decided in 1847 to send a search expedition after that of Sir John Franklin, Richardson was chosen to conduct it, and, with Dr. John Rae as his second in command, he sailed from Liverpool, on 25 March 1848. Travelling by way of New York, Albany, Montreal, and the lakes to Sault Saint Marie, Fort William, and Norway House on Lake Winnipeg, they reached Cumberland House, two thousand eight hundred and eighty miles from New York, on 13 June, sixty-four days after starting, and the estuary of the Mackenzie, four thousand five hundred miles from New York, on 4 Aug. On 3 Sept. they were compelled by ice-floes to abandon their boats in Icy Cove, Union and Dolphin Straits, nine miles north of Cape Kendall. They then marched to Fort Confidence, on the north side of Great Bear Lake, and reached it after crossing the Richardson and Kendall Rivers on 15 Sept. During the winter they made hourly observations of the temperature, which for two days (17 and 18 Dec.) averaged 55½° F. 'below zero,' besides noting the barometer, the wind, and the magnetic phenomena. In the following spring Richardson left Rae, who was twenty years his junior, in command,

and returned to England, reaching Liverpool on 6 Nov. 1849. Owing to his excellent arrangements for food and conveyance during Franklin's second expedition and this search expedition, not only was there no loss of life, but there was not even any privation such as temporarily to endanger the health of the men. His 'Journal,' published in 1851, was 'a model of the journal of a scientific traveller . . . abounding in varied information in relation to the geology of the country passed through, its natural productions, and inhabitantr'.

Being refused the appointment of director-general of the medical department of the navy, on the ground of his age, Richardson now, after forty-eight years' service, retired and passed the greater part of his remaining years at Lancrigg, Grasmere, the property of his mother-in-law, Mrs. Fletcher, and, after her death in 1858, of his wife. Here he accomplished much literary work, writing the articles 'Ichthyology' and 'Franklin' for the 'Encyclopædia Britannica' during the winter of 1856-7, and that on 'Polar Regions,' afterwards expanded into a volume, in 1859, and editing a second edition of Yarrell's 'British Fishes' in 1860 He also contributed to the 'Museum of Natural History,' and read Burns's works, Gawain Douglas's 'Virgil,' and Blind Harry's 'Wallace' for the Philological Society's 'Dictionary,' published by Oxford University. He gave medical aid to the poor, acted as magistrate, and spent much time in gardening, while his characteristic energy was evinced almost to the last in a tour of the picture galleries of Paris. Florence, Rome, Naples, and Venice between November 1862 and March 1863.

Richardson died at Lancrigg on 5 June 1865, and was buried at Grasmere churchyard. He was elected a fellow of the Royal Society in 1825, and received the royal medal in 1856. He was knighted in 1846, made companion of the Bath in 1850, and received the degree of LL.D. from the university of Dublin in 1858.

Richardson was thrice married—first on 1 June 1818, to Mary, daughter of William Stiven of Leith, who died on 25 Dec. 1831; secondly, in January 1833, to Mary, daughter of John Booth of Stickney, near Ingoldwells, Lincolnshire, and niece of Sir John Franklin, who died on 10 April 1845; and thirdly, on 4 Aug. 1847, to Mary, youngest daughter of Archibald Fletcher of Edinburgh and Eliza Fletcher. By his second wife he had four sons and two daughters.

II.—HIS ORNITHOLOGICAL WORK.

The special branch of zoology in which Richardson excelled was Ichthyology and for many years he ranked as the foremost descriptive ichthyologist of Britain and indeed, for a short time, of the world. His early articles, however, covered all of the vertebrate classes as well as the geography of the northern countries with which his fame has been so identified.

The minor reports, including ornithology, have been sufficiently noticed by Mr. Boulger. His greatest ornithological work, covering the same region, was contributed to the Fauna Boreali-Americana of which he was the editor. This was the second of the series, the one simply entitled "Birds" by William Swainson and John Richardson and published in 1831.

Quite a full account of this volume has been already published in the Osprey (v, pp. 10, 37-39) and to that we refer for information as to the manner in which Richardson collected the material for the work and the character of the co-operation of the two authors. We need only repeat here that Swainson testified that "the whole of the descriptions, and nearly all the synonymes, are entirely from the pen of Dr. Richardson," and that they are "models of perfection," which opinion re-echoed that of an earlier writer.

Five years after the publication of the volume on birds, and when be had completed the series of the Fauna Boreali-America, he presented a "report on North American Zoology" to the British Association for the advancement of science which was published in the volume for 1836, (p, 121-124).

In 1843, he published an inconsiderable note on the "Geographical Distribution of some American Birds" in the Annals of Natural History (xi, p. 484). It was merely a list of a dozen species collected at "Fort Simpson on the Mackenzie in latitude 62° 11′ N" and was interesting in "showing that several of the species have a higher range than [had previously] been recorded."

His later contributions related almost entirely to fishes.

REVIEWS.

Animals of the Past. | By | Frederic A. Lucas | Curator of the Division of Comparative Anatomy, | United States NationalMuseum—Fully Illustrated | New York | McClure, Phillips & Co. | 1901. [12mo. xxi + 258 p.—Price $2.]

This excellent volume is one of a series entitled "Science for Everybody" and is devoted to the consideration of those extinct animals which have already excited more or less popular interest. In ten chapters, different groups or species are considered and two of them are given up to the exposition of fossil birds.

In the fifth chapter, "Birds of Old" (p. 70-89), are described, and especially those that had true teeth, as the famous Jurassic *Archæopteryx* and the still better known cretaceous *Hesperornis*. Mr. Lucas has supplemented the osteological details respecting *Hesperornis* given by Professor Marsh with fresh information respecting its feathers, its limbs and its probable pose and habits.

All this is presented in so interesting a manner that we are fain to let the readers of the OSPREY share with us the pleasure which we have derived from its perusal. As some may not know, we premise with the statement that the *Hesperornis regalis* or "Great Toothed Diver" was a bird that flourished millions of years ago, during the cretaceous age of geology, and its remains—chiefly bones—have been found in the chalk beds of Kansas in sufficient numbers to enable paleontologists to reconstruct the entire skeleton. Furthermore, enough has been found to give us some idea of its feathery coat.

Now let Mr. Lucas tell about this bird.

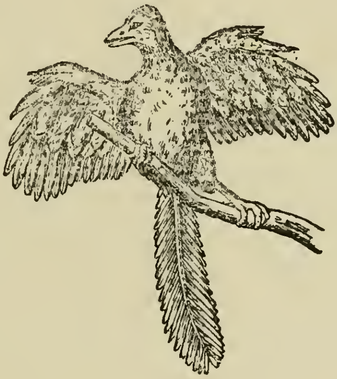
"The bird was probably covered with smooth, soft feathers, something like those of an Apteryx; this we know because Professor Williston found a specimen showing the impression of the skin of the lower part of the leg as well as of the feathers that covered the "thigh" and head. While such a covering seems rather inadequate for a bird of such exclusively aquatic habits as Hesperornis must have been, there seems no getting away from the facts in the case in the shape of Professor Williston's specimen, and we have in the Snake bird, one of the most aquatic of recent birds, an instance of similarly poor covering. As all know who have seen this bird at home, its feathers shed the water very imperfectly, and after long-continued submersion become saturated, a fact which partly accounts for the habit the bird has of hanging itself out to dry.

"The restoration which Mr. Gleeson has drawn differs radically from any yet made, and is the result of a careful study of the specimen belonging to the United States National Museum. No one can appreciate the peculiarities of Hesperornis and its remarkable departures from other swimming birds who has not seen the skeleton mounted in a swimming attitude. The great length of the legs, their position at the middle of the body, the narrowness of the body back of the hip joint, and the disproportionate length of the outer toe are all brought out in a manner which the picture of the bird squatting upon its haunches fails utterly to show. As for the tail, it is evident from the size and breadth of the bones that something of the kind was present; it is also evident that it was not like that of an ordinary bird, and so it has been drawn with just a suggestion of Archæopteryx about it.

"The most extraordinary thing about Hesperornis, however, is the position of the legs relative to the body, and this is something that was not even suspected until the skeleton was mounted in a swimming attitude. As anyone knows who has watched a duck swim, the usual place for the feet and legs is beneath and in a line with the body. But in our great extinct diver the articulations of the leg bones are such that this is impossible, and the feet and lower joint of the legs (called the tarsus) must have stood out nearly at right angles to the body, like a pair of oars. This is so peculiar and anomalous an attitude for the bird's legs that, although apparently indicated by the shape of the bones, it was at first thought to be due to the crushing and consequent distortion to which the bones had been subjected, and an endeavor was made to place the legs in the ordinary position, even though this was done at the expense of some little dislocation of the joints. But when the mounting of the skeleton had advanced further it became more evident that Hesperornis was not an ordinary bird, and that he could not have swum in the usual manner, since this would have brought his great knee caps up into his body, which would have been uncomfortable. And so, at the cost of some little time and trouble, the mountings were so changed that the legs stood out at the sides of the body, as shown in the picture''.

The last figure of the ''Archæopteryx as restored by Mr. Pycraft'' of the British Museum, is also reproduced by Mr. Lucas and we borrow and present it here.

This picture is here reproduced through the courtesy of the publishers.



The eighth chapter is replete with information about ''Feathered Giants'' (p. 139-158). The giants were the Moas of New Zeland, the Aepyornithids of Madagascar, and the recently discovered Phororhacids and Brontornithids of Patagonia. These were all of much later age than the toothed birds, and also much less unlike recent birds than are they. But for further information, we must refer to Mr. Lucas's book. In a vignette at the end of the chapter, the Moa and the Phororhacos are represented by the side of the largest living bird—the Ostrich—and the contrast is suggestive.

An artistic restoration (which the publishers have allowed us to give here) of the gigantic Phororhacos of Patagonia, a bird distinctly related to the modern Screamer (Cariama) serves as a frontispiece to this volume.

MACOUN ON CANADIAN BIRDS*.—This paper is largely a compilation from many authors who have written on the birds of North America, north of the northern boundary of the United States. The paper covers all British America, including Alaska and Greenland. The original matter contained in it is almost entirely from the experiences of the author and his son, Mr. J. M. Macoun, and from special explorations by Mr. W. Spreadborough. Manuscript notes from many observers have also been used. The matter is concisely stated and elaborated under several heads, as distribution and breeding notes.

Dates of arrival are often given, and due credit is given in every instance when statements or matter is quoted. Under the head of 'museum specimens' for each species where specimens were available in the geological survey collection under the author's charge, a brief history of the specimens and their number are given. Unfortunately these specimens are very few in nearly every case; it would seem that Canadian ornithologists should bestir themselves so that an adequate representation of British American birds should be available at the capital.

The nomenclature used is strictly that of the American Ornithologists' Union. A good feature is that the common names are in bold type at the head of each species while the scientific names are in italics and subordinated. The authorities for the scientific names might well have been left out as in the absence of descriptions and synonymies they are useless in a popular list.

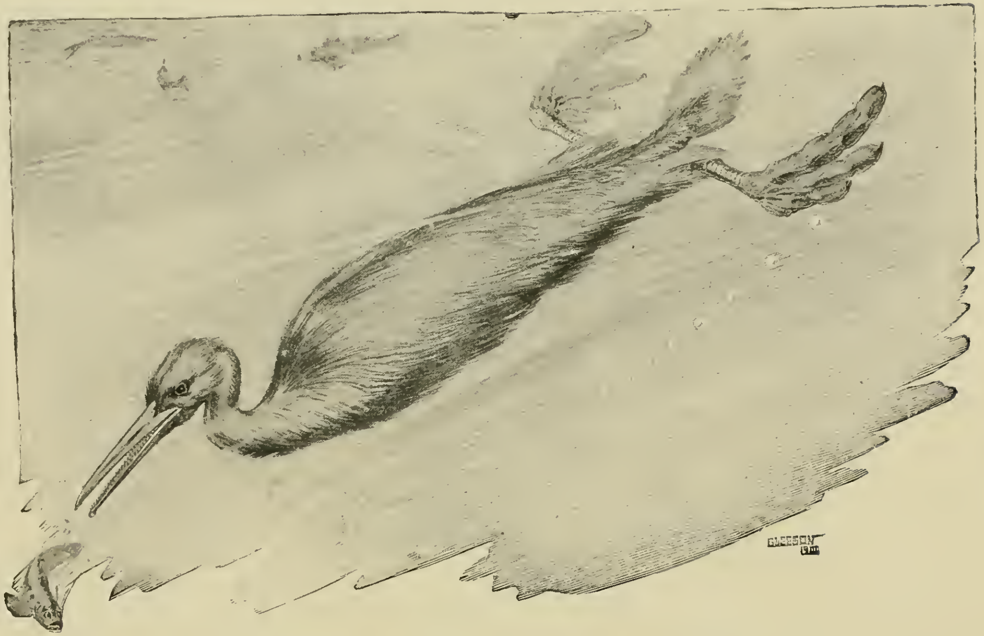
A few errors have evidently unavoidably crept into the paper; thus, the Point Barrow Gull is given as abundant about the Prybilofs' when the species should be the Glaucous-winged. It seems curious to southern naturalists to read, as for instance, that the Black Skimmer is 'Accidental on the South Atlantic coast'.

Professor Macoun's list is an earnest effort to bring the evidence that has been accumulating for many years into a concise shape for reference, and it is to be hoped it may prove a good basis on which to elaborate a future history of all the birds north of the boundary between British America and the United States. Two hundred and ninety-nine species are given in this first contribution, which may be obtained for the small charge of ten cents.

A second volume will cover the remaining species, and will include changes and corrections, and observers generally are invited to contribute.—W. P.

---

*Catalogue of Canadian Birds. Part 1. Water Birds, Gallinaceous Birds and Pigeons, including the following orders: Pygopodes, Longipennes, Tubinares, Steganopodes, Anseres, Herodiones, Paludicolæ, Limicolæ, Gallinæ and Columbæ, by John Macoun, Naturalist to the Geological Survey of Canada. Ottawa. 1900. [1-218 pp. Price, 10 cents.]



HESPERORNIS THE GREAT TOOTHED DIVER.

GENERAL HISTORY

OF

BIRDS.

CHAPTER I.

"This subject of ornithology is, indeed, an arduous one, whose very difficulty provokes investigation; for here an aspiring mind may try its strength, and if it succeed, the triumph is neither low nor grovelling, but splendid and honourable; and should failure ensue, the attempt is noble and commendable."—Aldrovandi, 1645.

THE ENGLISH NAMES.

Birds are the favorites of a greater proportion of humanity than any other animals. This is manifest in many ways; by the extent to which they are kept as pets; by the number of collectors of their skins or eggs or, in other words, of "ornithologists;" by the number of books yearly, monthly, indeed, almost daily, published, and, lastly, the number of magazines devoted to their consideration. That interest is likewise exemplified in the very word which they now bear among the English-speaking peoples.

Birds was not the name by which the class was always designated by the English and it stands out isolated and peculiar to our stock, and unlike that current in any other nation. Most of our group-names of animals are cognate with those of our remote kinsfolk of continental Europe, the Dutch, Germans, Danes and others, but so is not Birds. Our forefathers, however, did have a name for the class related to theirs and that was Fowl.

The founders of the English language brought with them from Jutland and the neighboring country the word prevalent at that time for the feathered creation in their native land, the Netherlands, and northern Germany; that was written Fugel, Fugol or Fugul. In the course of time it underwent modifications into the forms Foghel, Foghle, Fowel and Fowle (with slight variants) until, in the sixteenth and seventeenth centuries, Fowl became the accepted orthographical form. On the continent the variation was less, the word settling at last among the Germans and Dutch into Vogel, among the Danes into Fugl and among the Swedes into Fogel.

In the many centuries during which the word was being developed, the name continued to be applied generally in some form or other to all of the class of Aves and such usage persisted till the age of Shakespeare and the accepted version of the Bible and even for some time after. It finally became obsolete or was only used in compound words.

In Shakespeare's time, Fowl and Bird were almost equally used although, in the great dramatist's plays, Fowl appears only 13 times against 66 occurrences of Birds. If the usage of the two words is examined, however, it will become manifest that Bird is generally used for a small bird, a song bird, a young bird, or as a term of endearment, while Fowl is more frequently used as a class name or for larger kind. In many cases, however, it is determined by his tendency to alliteration, as in "falcon doth the fowl" (Measure for measure, ii, 2), "fishes and the winged fowl" (Comedy of Errors, ii, 1), "more preeminence than fish and fowls" (Ib. ii, 1), "when fowls have no feathers" (Ib. iii, 1), "Birds from brier" (Midsummer night's dream, v, 1), "birds sit brooding" (Love's Labor lost, v, 2), "as bird doth sing on bough" (Henry V, iii, 2), "birds and beasts" (Julius Cæsar, i, 3), and numerous other instances.

In still later time, Fowl was in equally general use, as is exemplified in the accepted or "King James" version of the Bible. It is an interesting fact that Fowl and Bird have been used to translate no less than ten words or variants of the original Hebrew and Greek texts, and that the two English words have been used almost indifferently as equivalent for any one of most of the Hebrew and Greek names. If we take Young's "Analytical Concordance to the Bible" (the seventh edition was published in 1899) we will find the ratio of the English names to the originals. Young's transliterations of the Hebrew and Greek are given, but the forms accepted by the best modern scholars are added within parentheses.

	BIRD.	FOWL.
Oph=Fowl, Bird	9	58 + 2
Ayit=Ravenous Bird	1	3
Tsippor (Sippor, Çippor)=Sparrow	30	6
Tsephar (Sefar)=Bird	1	0
Tsippār	0	3
Baal kanapf (Baál kanaf)=owner of a wing	1	0
* *	*	
Orneon=Bird (domestic or wild)	1	2
Pteteinon=Flying winged animal	5	9
Ptenon=Feathered winged animal	1	0
* *	*	
Ayit tsippor (Ayit sippor)=Ravenous bird	3	0
Barburim=Choice or fat geese (Fatted Fowl)	0	1

It is noticeable that the Greek word which is generally associated with bird (*ornis*) was not used by any of the Evangelists. That word, however, is the one which has given name to the department of knowledge which treats of birds.

A contemporary of Shakespeare and the translators of the Bible, named Raphael Holinshed, published in 1577 a list of English animals in his Chronicles of England, and, in due course, reaches the feathered class. ''Order requireth that I speeke somewhat of the fowles also of England,'' he says, and these, he continues, "I may easilie divide into the wild and tame.'' After enumerating the larger, he winds up with the ''other fowles'' of smaller size, ''as Nightingales, Thrushes, Blackbirds,'' etc. Here, it will be seen, bird appears as a compound in the name of a small species.

Bird belongs to what philologists designate as the hypercoristic class or, in plain English, pet names.

In ancient times—more than a thousand years ago—the English called the young of the feathered class Brid or Bird, the latter form, in time, becoming the prevalent one. The origin of the word is unknown* but it is possible that it was to some extent onomatopœic and the outcome of a tendency to respond with a trill to and imitate the chirping of the chickens which gathered round the good hen-wife; she wanted to have a talk with them! From application to the young of the familiar fowl it has extended to all the feathered tribes of like size. At length it rivalled the old word Fowl in general usage for the class and finally displaced it altogether as a general term.

The branch of science devoted to the consideration of Birds is ornithology. The name is of comparatively recent coinage and has not been traced backwards of 1655. It is of Greek origin, being from the oblique form (ornith-) of ornis, a bird, and logos, commonly translated as discourse. The Greeks themselves, having no systemized knowledge of the subject, had no use for the term, although the adjective ornithologos (treating of birds) is to be found in Plutarch; it was left for the moderns to make and utilize ornithology.

But ornithology (under the variant form ornithologie) was originally used in English with a very different signification from that which it now bears; it was with the meaning of talk *among* birds (about men for example) and not *about* birds. Its first appearance was in an anonymous work, published at London in 1655, entitled ''Ornithologie or The Speech of Birds.'' It was not until years afterwards that the word was revived with the meaning it now has. The first meaning has been long obsolete; it did not, indeed, survive the work in which it was born and was thus still-born, although several editions of the ornithologie were printed. Professor Newton has given further information in the short article entitled ornithology in the Dictionary of Birds and

---

*The very natural idea that such a form as brid or brede might be derived from brod or brood is declared by Doctor Murray to be baseless "and even the suggestion that it may be formed like these from the root *bru-* appears to be quite inadmissable" to that great philologist.

leaves it doubtful whether, as has been asserted, Thomas Fuller was the author.

THE BIRDS' PLACE IN NATURE.

The class of Birds is by far the largest aggregate of species of similar appearance among the vertebrates. There is no doubt about its limits or extent and the most inexperienced can recognize any living representative of the group as well as the most scientific. By their feathers all may be known. While these are homologous with scales and hairs, there is no gradation into either. No bird is destitute of feathers and no other animal has any. Numerous, too, as are the variations in form, such are of minor value and reducible to a common general form. A bird, then, is a feathered animal with two legs representing the hind legs of quadrupeds, two wings representing the fore legs of other animals, and a head with a bill covered with a horny sheath.

The place these animals fill in nature and their relations to others are not so evident. In ancient times it was assumed that there were four elements, earth, air, water, and fire. Animals were apportioned to each of these elements and the Birds were the special inhabitants of the air. In the account of creation in Genesis, the inhabitants of the more tenuous elements were created together while those of the earth were called later into being. "God said, Let the waters bring forth abundantly the moving creature that hath life and fowl that may fly above the earth in the open firmament of heaven'', and that creation marked ''the fifth day.'' Similar was the idea of the philosophers of the great nations of antiquity. Plato called the inhabitants of the air Xeronomika in contradistinction to those of the water (Hygrotrophika) and those of the earth (Xerotrophika). Ovid sang the myth of creation in terms that are almost a paraphrase of the Hebrew hierophant's narrative.

An early Italian author of a work on ornithology, Ulysses Aldrovandi who published in 1599, was influenced by such considerations. After outlining the subjects he proposes to treat of, he determines:

''Among these subjects I judge that the first place in the publication should be given to that which treats of animals, as being a nobler subject than the others. For as Plato reckons four great divisions of animals, corresponding to the four elements, earth, water, air, and fire, I think it expedient, upon due reflection, to begin with birds, that division seeming to offer itself first in order; for as to those corresponding to fire, I consider that none such exist. Although certain insects fall under the aerial division, some with conspicuous wings, like the bee, and others with concealed, as the beetle, the order of procedure may well be assigned to birds, which fly with regular and not with membranaceous wings''.

All such views were long ago discarded, and the lesson in science has been learned that the best way to look upon animals is from an objective point of

Ospreys Wanted.

The OSPREY COMPANY wants numbers of the OSPREY for October and December, 1896. A year's subscription will be given for each number.

Address OSPREY COMPANY, 321 and 323 4½ Street, N. W., Washington, D. C.

For Sale or Exchange

Strictly first-class Southern Sea-birds' Eggs in Sets with full and accurate data, viz:

American
Oystercatcher,
Royal Tern, Willet,
Wilson's Plover, Clapper
Rail, Brown Pelican, Laughing
Gull, Foster's Tern, Black
Skimmer, Boat-tail
Grackle, and
many

Others, very cheap for

Cash or A 1 Sets.

DR. M. T. CLECKLEY,
459 Green Street,
Augusta, Ga.

J. A. ALLEN, Editor. FRANK M. CHAPMAN, Assoc. Editor.

THE AUK.

A Quarterly Journal of Ornithology.

Official Organ of the American Ornithologists' Union.

As the official organ of the Union, "The Auk" is the leading ornithological publication of this country. Each number contains about 100 pages of text, a handsomely colored plate, and other illustrations. The principal articles are by recognized authorities, and are of both a popular and scientific nature. The department of "General Notes" gives brief records of new and interesting facts concerning birds contributed by observers throughout the United States and Canada. Recent ornithological literature is reviewed at length and news items are commented on by the editors. "The Auk" is thus indispensable to those who would be kept informed of the advance made in the study of birds, either in the museum or in the field.

Price of current volume, $3.00. Single numbers, 75 cts.

Address **WILLIAM DUTCHER, Treas.,**
525 Manhattan Avenue, NEW YORK CITY.

WANTED.

GOOD PHOTOGRAPHS
OF BIRD NESTS,
BIRDS AND ANIMALS,
IN EXCHANGE
FOR SIMILAR
PHOTOGRAPHS.

PAUL BARTSCH,
Smithsonian Institution,
Washington, D. C.

BERNARD J. BRETHERTON,
Professional Ornithologist.

Mounted Specimens, Study Skins. Nests and Eggs, or rough Skeletons and Alcoholics, collected and prepared to order, for sale. Correspondence solicited. . .

NEWPORT, - - - - OREGON.

WALTER F. WEBB,

ALBION, NEW YORK.

Always has for sale hundreds of fine specimens of interest to Ornithologists and Oologists, as well as books, supplies and back numbers of publications. Our little Manual of 100 pages is still the handiest thing you can have.

Prices all eggs and skins, and contains an immense lot of other practical information. Only 15 cents. Correspondence a pleasure. Let us hear from you.

—JOURNAL OF—

The Maine Ornithological Society.

A quarterly Journal of Maine Ornithology. "Bird protection, Bird study, the spread of knowledge thus gained; these are our objects."

50 cents per annum. 15 cents per copy.
Sample copy free.

J. MERTON SWAIN,
Editor and Publisher,
Waterville, Me.

FOLIAGE GRASSES, &c.,
FOR MOUNTING BIRDS,
INSECTS AND MAMMALS

As used at South Kinsington, New York and principal Museums. Estimates given.

MR. H. MINTORN & MRS. MOGRIDGE,
39 West 99th Street,
New York.

The Forester.

During the coming Year **THE FORESTER**, the Illustrated Monthly Magazine of the American Forestry Association, will be more interesting and valuable than ever before. No one who cares for trees or life in the woods, or who is interested in the movement to encourage the preservation and care of the forests should be without it.

Among the contributors are Gifford Pinchot, Chief of the U. S. Division of Forestry; Dr. B. E. Fernow, Dean of the New York State College of Forestry; Henry Gannett, Geographer of the U. S. Geological Survey; Dr. John Gifford; Prof. Henry S. Graves, of the Yale Forest School; Dr. C. A. Scheuck, of Biltmore, N. C.; Hon. James Wilson, Secretary of Agriculture; Prof. Wm. R. Dudley, of Stanford University, Cal.; Prof. N. S. Shaler, of Harvard Universaty; and many others of note and authority on their specialties.

Besides a number of contributed articles, each issue of the Magazine will contain a record of legislation touching the interests of the country's forests (of which there will probably be a great deal during the coming year) with editorial comments, and reviews of recent publications by the most competent experts. Each number is handsomely illustrated. For a sample copy send a two cent stamp to

THE FORESTER,
202 Fourteenth St. S. W.,
Washington, D. C.

THE FORESTER is sent to members of the **American Forestry Association** free of charge. Annual membership dues, $2.00. Life membership, $1.00. Sustaining membership, $25 per year. The association is engaged in work which is of the greatest importance, and for the progress of which all the moral and financial support obtainable is needed.

To join the Association address the *Secretary*,
202 Fourteenth Street S. W.,
Washington, D. C.

CHOICE NORTH DAKOTA SETS,

	PER EGG.		PER EGG.
Western Willet	.40	Ferruginous Rough-leg Hawk	.60
Bart. Sandpiper	.15	Short Eared Owl	.40
Wilson's Phalarope	.25	Am. Long Eared Owl	.15
Kildeer	.10	Green Wing Teal	.30
Spotted Sandpiper	.10	Gadwall	.20
Belted Piping Plover	.50	Canvas-back Duck	.30
Prairie Sharp-tail Grouse	.20	Red-head Duck	.10
Ch. Collared Longspur	.15	Shoveller	.10
Swatnson Hawk	.20	Mallard	.08
Marsh Hawk	.20	Am. Golden-eye	.20

Eirst-class with data. Personally collected. No exchanges. Carriage prepaid by express on order exceeding $3.00. On order exceeding $10 net will allow discount 10 per cent.

References: J. P. Norris, Jr., William Brewster and others.

EUGENE S. ROLFE,
Minnewaukan, N. Dak.

The Plant World.

A Bright and Readible Illustrated Monthly Journal of Popular Botany.

The Magazine, now in its sixth year, is aiming to do for plants what *The Osprey* is doing for birds.

It contains 28 pages of reading matter each month, and is illustrated with numerous half-tone plates and cuts. While devoted to popular botany **The Plant World** is in no sense "botanical" or technical. It appeals to the nature lover and the general reader.

Subscription price, $1.00 a year, with a neat little book premium free with every new subscriber.

Send a stamp for a sample copy.

Address:

THE PLANT WORLD COMPANY,
P. O Box 334. Washington, D. C.

THE OÖLOGIST

(of Albion, N. Y.)

IS THE OLDEST PUBLICATION IN AMERICA.

THE OÖLOGIST is the cheapest "Bird" publication in the world (for only 50 cents you receive $1.00 worth of premiums, your selection, 25c. worth of advertising and the OÖLOGIST for a whole year).

THE OÖLOGIST, has a larger paid circulation than, all other "Bird" publications in America combined.

THE OÖLOGIST has long been recognized the best Advertising Medium in its line in the world. The "*Country Gentlemen*" is the leading Agricultural newspaper in America, and in soliciting advertising for its columns, it makes its strongest hit in the following statement: "As to quantity of circulation it publishes many more 'Want Ads' than *all other papers combined*. You doubtless know what a Want Ad' circulation must be *and always is*?"

From this same stand point THE OÖLOGIST'S rank among publications devoted not only to Ornithology but Natural History as well, is identical to that of the COUNTRY GENTLEMEN among agricultural publications.

THE Oölogist has very few half-tones and contains only 16 pages each issue—one-half of which are advertisning.

During the past fifteen years, (THE OÖLOGIST'S age) many superior "Bird" publications and scores of inferior ones have dropped by the way. THE OÖLOGIST, however, is still issued each month and a sample copy of a recent issue can always be obtained by addressing a postal to

FRANK W. LATTIN, Publisher,
ALBION, N. Y.